

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/02118

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B25D9/20 B25D9/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B25D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | US 5 082 067 A (TORNQVIST PETER J T) 21 January 1992 (1992-01-21) cited in the application column 2, line 35 -column 5, line 45; figure 1 | 1-25 |
| A | US 4 450 920 A (KRASNOFF EUGENE L ET AL) 29 May 1984 (1984-05-29) figures 1,2 | 1 |
| A | US 5 065 824 A (OTTESTAD JACK B) 19 November 1991 (1991-11-19) figures 1-7 | 1,16 |
| A | US 4 660 658 A (GUSTAFSSON PER S G) 28 April 1987 (1987-04-28) figures 2-6 | 1,16 |
| | -/-- | |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

23 July 2003

Date of mailing of the international search report

01/08/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Rilliard, A

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | US 4 667 748 A (LAVON ERIK V) 26 May 1987 (1987-05-26) figures 2,3 — | 1,16 |
| A | US 4 592 431 A (TORNQVIST PETER J T) 3 June 1986 (1986-06-03) figures 1,2 — | 1,16 |
| A | US 526 342 A (CARLINET JOHN G) 18 September 1894 (1894-09-18) figures 1,2 ——— | 1,16 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/02118

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|---|--|
| US 5082067 | A | 21-01-1992 | SE 460349 B AT 106789 T DE 68916024 D1 DE 68916024 T2 EP 0423121 A1 JP 2694470 B2 JP 3502783 T SE 8800608 A WO 8907511 A1 | 02-10-1989 15-06-1994 14-07-1994 15-12-1994 24-04-1991 24-12-1997 27-06-1991 23-08-1989 24-08-1989 |
| US 4450920 | A | 29-05-1984 | ZA 8104749 A | 28-07-1982 |
| US 5065824 | A | 19-11-1991 | AT 176615 T AU 638104 B2 AU 7165091 A BR 9007948 A CA 2068868 A1 CA 2139677 C DE 69032948 D1 DE 69032948 T2 DK 507856 T3 EP 0507856 A1 ES 2128316 T3 FI 922936 A GR 3029825 T3 JP 2919610 B2 JP 5503042 T KR 155954 B1 KR 165562 B1 MX 172206 B NO 922468 A ,B, NO 950975 A ,B, NZ 247439 A PT 96386 A ,B WO 9109709 A1 ZA 9010432 A | 15-02-1999 17-06-1993 24-07-1991 27-10-1992 29-06-1991 26-11-1996 25-03-1999 26-08-1999 20-09-1999 14-10-1992 16-05-1999 24-06-1992 30-06-1999 12-07-1999 27-05-1993 18-02-1999 20-03-1999 07-12-1993 24-08-1992 24-08-1992 25-06-1993 30-09-1992 11-07-1991 24-12-1991 |
| US 4660658 | A | 28-04-1987 | SE 444127 B AU 4415785 A EP 0171374 A1 JP 61014392 A NO 852510 A SE 8403370 A | 24-03-1986 30-01-1986 12-02-1986 22-01-1986 27-12-1985 26-12-1985 |
| US 4667748 | A | 26-05-1987 | SE 443738 B BR 8305386 A EP 0105854 A2 FI 833509 A JP 59081069 A SE 8205574 A | 10-03-1986 08-05-1984 18-04-1984 31-03-1984 10-05-1984 31-03-1984 |
| US 4592431 | A | 03-06-1986 | EP 0160652 A1 JP 60501151 T SE 8207351 A WO 8402488 A1 | 13-11-1985 25-07-1985 23-06-1984 05-07-1984 |
| US 526342 | A | | NONE | |